

CLAIM AMENDMENTS

1. (Original) An interchangeable electrolyte for use in a battery cell and an electroplating cell, each cell having a positive electrode and a negative electrode contactable with the interchangeable electrolyte, the interchangeable electrolyte comprising an aqueous electrolyte and a surface deposition modifying additive in an amount adapted to promote interchangeable use in the battery cell and the electroplating cell.
2. (Original) The interchangeable electrolyte of claim 1 wherein the deposition modifying additive limits dendritic electrodeposition on the negative electrode of the battery cell.
3. (Original) The interchangeable electrolyte of claim 1 wherein the deposition modifying additive promotes smooth plating in the electroplating cell.
4. (Original) The interchangeable electrolyte of claim 1 wherein the aqueous electrolyte is composed of sulfuric acid and water.
5. (Currently Amended) The interchangeable electrolyte of claim 1 wherein the ~~deposition modifying additive is an organic compound having at least 8 carbon atoms the interchangeable electrolyte is diluted or concentrated prior to an interchangeable use thereof~~
6. (Original) The interchangeable electrolyte of claim 1 wherein the deposition modifying additive is an organic compound having a molecular structure having both a polar

aspect and a non polar aspect.

7. (Original) The interchangeable electrolyte of claim 1 wherein the deposition modifying additive is a surface active substance or a surfactant.

8. (Cancelled) The interchangeable electrolyte of claim 1 wherein the deposition modifying additive is an organic compound having from 8 to 28 carbon atoms.

9. (Cancelled) The interchangeable electrolyte of claim 1 wherein the deposition modifying additive is an organic compound having from 16 to 28 carbon atoms.

10. (Cancelled) The interchangeable electrolyte of claim 1 wherein the deposition modifying additive is an organic compound having a molecular weight of from 250 to 550.

11. (Currently Amended) An electrochemical cell comprising a positive electrode, an opposed negative electrode, an aqueous interchangeable electrolyte suitable for use in a battery cell and an electroplating cell, the aqueous interchangeable electrolyte in ionic contact with the negative electrode, the interchangeable electrolyte engendered with a deposition modifying agent for inhibiting dendritic electrodeposition on the negative electrode of metal ions emanating from the positive electrode to reduce or inhibit mass gain of the negative electrode, wherein the deposition inhibiting agent is ionic in nature and attracted to the negative electrode or to an ionic species in the electrolyte, which together are attracted to the negative electrode.

12. (Cancelled) An electrochemical cell according to claim 11, wherein the deposition inhibiting agent is ionic in nature and attracted to the negative electrode or to an ionic species in the electrolyte, which together are attracted to the negative electrode.

13. (Cancelled) An electrochemical cell according to claim 11, wherein the deposition modifying agent includes an alkyl substituent that is non-polar in nature and provides a barrier to metal ions originating from the positive electrode.

14. (Original) An electrochemical cell according to claim 11, wherein the electrochemical cell is a secondary cell or an electroplating cell and wherein the deposition modifying agent and electrolyte are interchangeable between the secondary cell and the electroplating cell on an equivalent volume basis or by concentration or dilution thereof to the appropriate specific gravity of each cell.

15. (Original) An electrochemical cell according to claim 14, wherein the secondary cell is a lead acid battery cell and the electroplating cell is a tin electroplating cell.

16. (Original) An electrochemical cell according to claim 15, wherein the electrolyte is dilute sulfuric acid dosed with n-alkyl dimethyl benzyl ammonium chloride or sodium dioctyl sulphosuccinate as the deposition modifying agent.

17. (Currently Amended) A method of providing an interchangeable electrolyte for use in electroplating and battery electrochemical cells comprising providing an electrolyte, adding to

the electrolyte a deposition modifying agent to form an interchangeable electrolyte which is compatible with the components of the electroplating and battery electrochemical cells, being non-reactive or slowly reactive with the electrolyte and capable of being attracted to the negative electrode, providing at least one effect selected from the group consisting of inhibiting or preventing dendritic deposition of metal ions emanating from the positive electrode on the negative electrode in a battery electrochemical cell and promoting smooth electroplating of an electroplating surface in an electroplating electrochemical cell and, removing the interchangeable electrolyte from a first electrochemical cell, adjusting the specific gravity of the interchangeable electrolyte from the first electrochemical cell, and adding the interchangeable electrolyte to a second electrochemical cell.

18. (Currently Amended) The method of claim 17 further comprising transferring the interchangeable electrolyte from the a battery electrochemical cell to the an electroplating electrochemical cell.

19. (Currently Amended) The method for claim 17 further comprising removing the interchangeable electrolyte from the a battery electrochemical cell, adjusting the specific gravity of the interchangeable electrolyte by dilution or concentration, and adding the interchangeable electrolyte to an electroplating electrochemical cell.

20. (Currently Amended) The method of claim 17 further comprising removing the interchangeable electrolyte from the battery first electrochemical cell, and blending the interchangeable electrolyte with a fresh electrolyte to form a recycled interchangeable electrolyte.

21. (New) An interchangeable electrolyte for use in a battery cell and an electroplating cell, each cell having a positive electrode and a negative electrode contactable with the interchangeable electrolyte, the interchangeable electrolyte comprising an aqueous electrolyte and a surface deposition modifying additive in an amount adapted to promote interchangeable use in the battery cell and the electroplating cell wherein the deposition modifying additive is an organic compound having at least 8 carbon atoms.

22. (New) The interchangeable electrolyte of claim 21 wherein the deposition modifying additive limits dendritic electrodeposition on the negative electrode of the battery cell.

23. (New) The interchangeable electrolyte of claim 21 wherein the deposition modifying additive promotes smooth plating in the electroplating cell.

24. (New) The interchangeable electrolyte of claim 21 wherein the aqueous electrolyte is composed of sulfuric acid and water.

25. (New) The interchangeable electrolyte of claim 21 wherein the deposition modifying additive is an organic compound having a molecular structure having both a polar aspect and a non polar aspect.

26. (New) The interchangeable electrolyte of claim 21 wherein the deposition modifying additive is a surface active substance or a surfactant.

27. (New) The interchangeable electrolyte of claim 21 wherein the deposition modifying additive is an organic compound having from 8 to 28 carbon atoms.

28. (New) The interchangeable electrolyte of claim 21 wherein the deposition modifying additive is an organic compound having from 16 to 28 carbon atoms.

29. (New) An interchangeable electrolyte for use in a battery cell and an electroplating cell, each cell having a positive electrode and a negative electrode contactable with the interchangeable electrolyte, the interchangeable electrolyte comprising an aqueous electrolyte and a surface deposition modifying additive in an amount adapted to promote interchangeable use in the battery cell and the electroplating cell wherein the deposition modifying additive is an organic compound having a molecular weight of from 250 to 550.

30. (New) The interchangeable electrolyte of claim 29 wherein the deposition modifying additive limits dendritic electrodeposition on the negative electrode of the battery cell.

31. (New) The interchangeable electrolyte of claim 29 wherein the deposition modifying additive promotes smooth plating in the electroplating cell.

32. (New) The interchangeable electrolyte of claim 29 wherein the aqueous electrolyte is composed of sulfuric acid and water.

33. (New) The interchangeable electrolyte of claim 29 wherein the deposition modifying additive is an organic compound having a molecular structure having both a polar

aspect and a non polar aspect.

34. (New) The interchangeable electrolyte of claim 29 wherein the deposition modifying additive is a surface active substance or a surfactant.

35. (New) The interchangeable electrolyte of claim 29 wherein the deposition modifying additive is an organic compound having from 8 to 28 carbon atoms.

36. (New) The interchangeable electrolyte of claim 29 wherein the deposition modifying additive is an organic compound having from 16 to 28 carbon atoms.

37. (New) An electrochemical cell comprising a positive electrode, an opposed negative electrode, an aqueous interchangeable electrolyte suitable for use in a battery cell and an electroplating cell, the aqueous interchangeable electrolyte in ionic contact with the negative electrode, the interchangeable electrolyte engendered with a deposition modifying agent for inhibiting dendritic electrodeposition on the negative electrode of metal ions emanating from the positive electrode to reduce or inhibit mass gain of the negative electrode, the deposition modifying agent including an alkyl substituent that is non-polar in nature and provides a barrier to metal ions originating from the positive electrode.

38. (New) An electrochemical cell comprising a positive electrode, an opposed negative electrode, an aqueous interchangeable electrolyte suitable for use in a battery cell and an electroplating cell, the aqueous interchangeable electrolyte in ionic contact with the negative electrode, the interchangeable electrolyte engendered with a deposition modifying agent for

inhibiting dendritic electrodeposition on the negative electrode of metal ions emanating from the positive electrode to reduce or inhibit mass gain of the negative electrode, wherein the electrochemical cell is a secondary cell or an electroplating cell and wherein the deposition modifying agent and electrolyte are interchangeable between the secondary cell and the electroplating cell on an equivalent volume basis or by concentration or dilution thereof to the appropriate specific gravity of each cell, the secondary cell being a lead acid battery cell and the electroplating cell being a tin electroplating cell, the electrolyte being dilute sulfuric acid dosed with n-alkyl dimethyl benzyl ammonium chloride or sodium dioctyl sulphosuccinate as the deposition modifying agent.

39. (New) A method of providing an interchangeable electrolyte for use in electroplating and battery electrochemical cells comprising providing an electrolyte, adding to the electrolyte a deposition modifying agent to form an interchangeable electrolyte which is compatible with the components of the electroplating and battery electrochemical cells, being non-reactive or slowly reactive with the electrolyte and capable of being attracted to the negative electrode, providing at least one effect selected from the group consisting of inhibiting or preventing dendritic deposition of metal ions emanating from the positive electrode on the negative electrode in a battery electrochemical cell and promoting smooth electroplating of an electroplating surface in an electroplating electrochemical cell removing the interchangeable electrolyte from the battery electrochemical cell, and blending the interchangeable electrolyte with a fresh electrolyte to form a recycled interchangeable electrolyte.

40. (New) The method of claim 39 further comprising transferring the interchangeable electrolyte from the battery electrochemical cell to the electroplating electrochemical cell.

41. (New) A method of providing an interchangeable electrolyte for use in electroplating and battery electrochemical cells comprising providing an electrolyte, adding to the electrolyte a deposition modifying agent to form an interchangeable electrolyte which is compatible with the components of the electroplating and battery electrochemical cells, being non-reactive or slowly reactive with the electrolyte and capable of being attracted to the negative electrode, providing at least one effect selected from the group consisting of inhibiting or preventing dendritic deposition of metal ions emanating from the positive electrode on the negative electrode in a battery electrochemical cell and promoting smooth electroplating of an electroplating surface in an electroplating electrochemical cell, recovering the interchangeable electrolyte and adjusting the specific gravity of the interchangeable electrolyte by dilution or concentration prior to reuse.

42. (New) A method for providing an interchangeable electrolyte for use in electroplating cells and battery cells comprising:

- providing an electrolyte;
- treating the electrolyte with a deposition modifying agent to form an interchangeable electrolyte which is removable from a first electrochemical cell and insertable into a second electrochemical cell;
- using the interchangeable electrolyte in a first electrochemical cell;
- removing the interchangeable electrolyte from the first electrochemical cell; and
- adjusting a specific gravity of the interchangeable electrolyte for use in the second electrochemical cell.

43. (New) The method of claim 42 further comprising inserting the interchangeable electrolyte into the second electrochemical cell.

44. (New) The method for claim 42 further comprising removing the interchangeable electrolyte from the second electrochemical cell, adjusting the specific gravity of the interchangeable electrolyte by dilution or concentration, and adding the interchangeable electrolyte to a third electrochemical cell.

45. (New) The method of claim 42 further comprising blending the interchangeable electrolyte with a fresh electrolyte to form a recycled interchangeable electrolyte.

46. (New) The method of claim 42 further comprising adding water to the interchangeable electrolyte prior to reuse.

47. (New) A method for determining whether an electrolyte obtained from an electrochemical cell is capable of reuse in another electrochemical cell comprising:  
providing a sample of the electrolyte;  
providing a test unit having two interconnected electrochemical cells, a first electrochemical cell and a second electrochemical cell, each cell having a positive electrode and a negative electrode and means for applying power to the electrodes;  
placing the sample in the first electrochemical cell and placing a standardized electrolyte in the second electrochemical cell, the standardized electrolyte being functionally equivalent to a fresh electrolyte; and,  
applying power to the electrodes for a time sufficient to identify performance differences between the sample and the standardized electrolyte.

48. (New) The method of claim 47 further comprising inspecting the negative electrodes for an amount and quantity of material deposited thereon.

49. (New) The method of claim 47 wherein the sample electrolyte is from a battery cell, and the standardized electrolyte is a fresh battery electrolyte.

50. (New) A method of claim 47 further comprising treating the sample prior to placing the sample in the first electrochemical cell.

51. (New) The method of claim 47 further comprising concentrating or diluting the sample prior to placing the sample in the first electrochemical cell.

52. (New) The method of claim 47 further comprising comparing the performance differences between the two electrochemical cells and determining whether the sampled electrolyte is usable in another electrochemical cell.

53. (New) The method of claim 47 wherein the electrolyte sample is obtained from a secondary cell.

54. (New) The method of claim 47 wherein the electrolyte sample is obtained from an electroplating cell.